



LIEBHERR

OIL ANALYSIS REPORT

| | |
|-----------------|--------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |



Area
[GIORTANOS SCRAP]
Machine Id
LIEBHERR R956 055622-1728
Component
Hydraulic System
Fluid
LIEBHERR HYD OIL (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. (taken as a result of failure. Shear valve in the machine came apart. Warranty claim submitted).

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|-------------|----------|----------|
| Sample Number | | Client Info | | LHMC154573 | --- | --- |
| Sample Date | | Client Info | | 10 Apr 2024 | --- | --- |
| Machine Age | hrs | Client Info | | 2400 | --- | --- |
| Oil Age | hrs | Client Info | | 256 | --- | --- |
| Filter Age | hrs | Client Info | | 256 | --- | --- |
| Oil Changed | | Client Info | | Changed | --- | --- |
| Filter Changed | | Client Info | | Changed | --- | --- |
| Sample Status | | | | NORMAL | --- | --- |

WEAR

The wear metal levels do not reflect the reported failure.

| | | | | | | |
|--------------|--------|-------------|------|------|-----|-----|
| Iron | ppm | ASTM D5185m | >50 | 6 | --- | --- |
| Chromium | ppm | ASTM D5185m | >15 | <1 | --- | --- |
| Nickel | ppm | ASTM D5185m | >5 | 0 | --- | --- |
| Titanium | ppm | ASTM D5185m | | 0 | --- | --- |
| Silver | ppm | ASTM D5185m | | 0 | --- | --- |
| Aluminum | ppm | ASTM D5185m | >8 | 0 | --- | --- |
| Lead | ppm | ASTM D5185m | >5 | 0 | --- | --- |
| Copper | ppm | ASTM D5185m | >15 | 3 | --- | --- |
| Tin | ppm | ASTM D5185m | >5 | 0 | --- | --- |
| Vanadium | ppm | ASTM D5185m | | <1 | --- | --- |
| White Metal | scalar | *Visual | NONE | NONE | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | --- | --- |

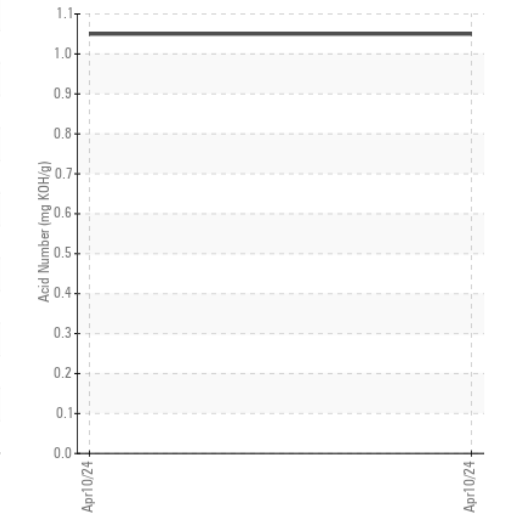
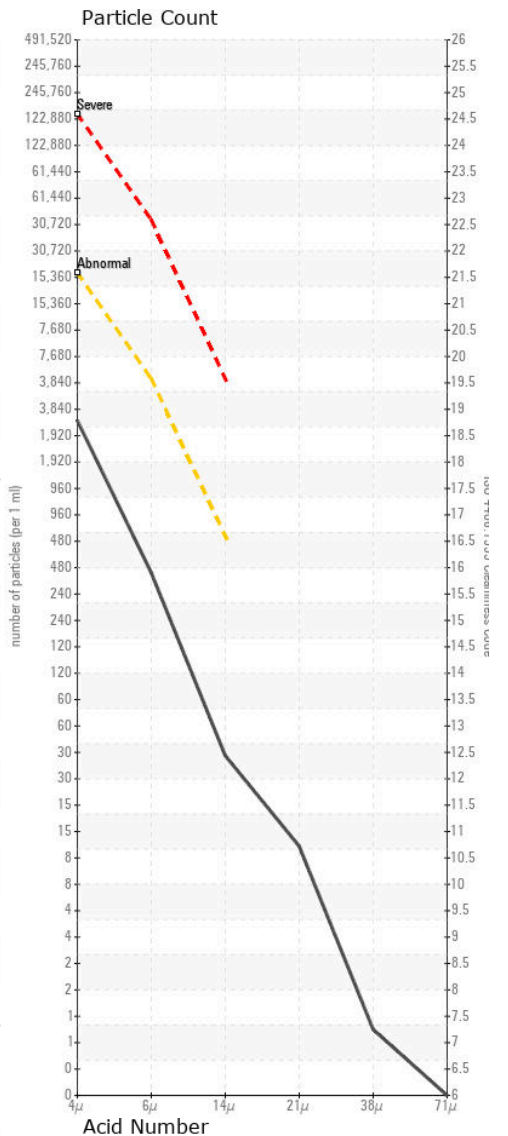
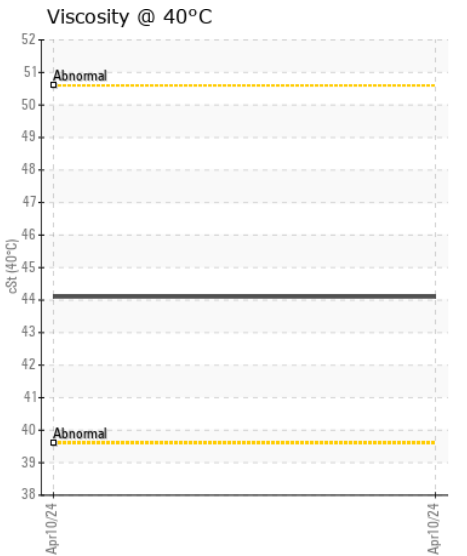
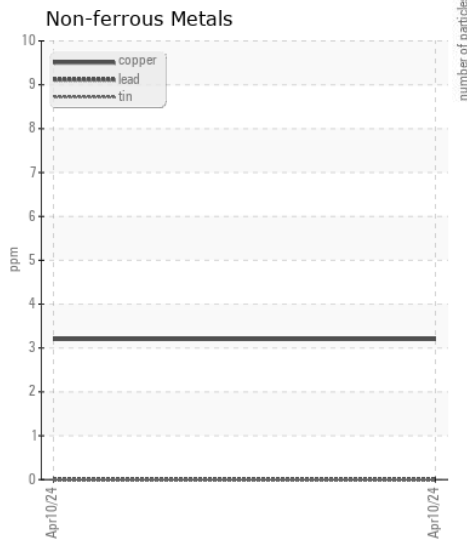
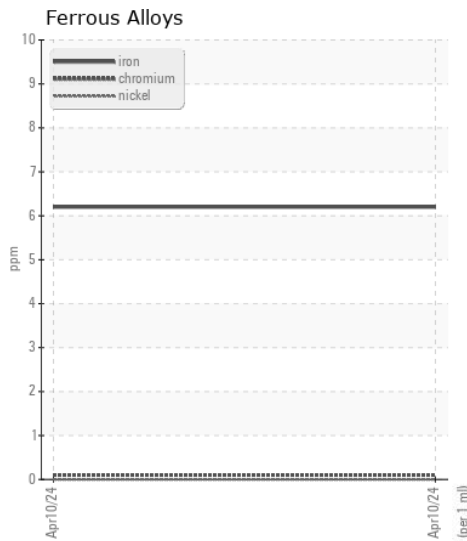
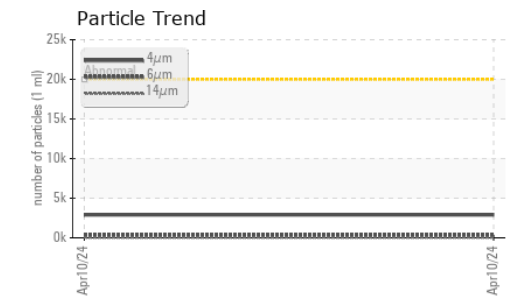
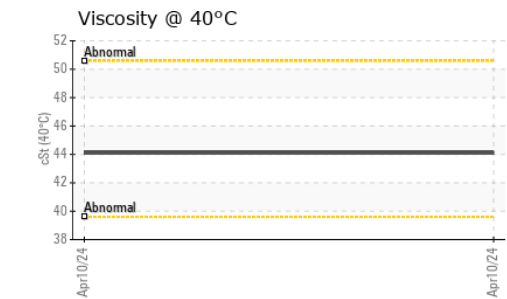
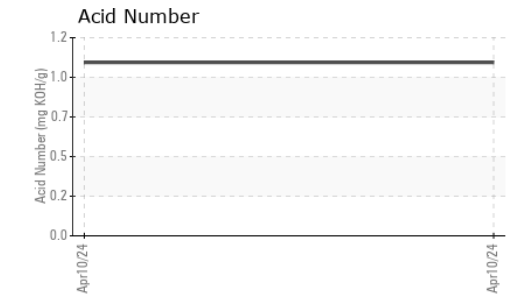
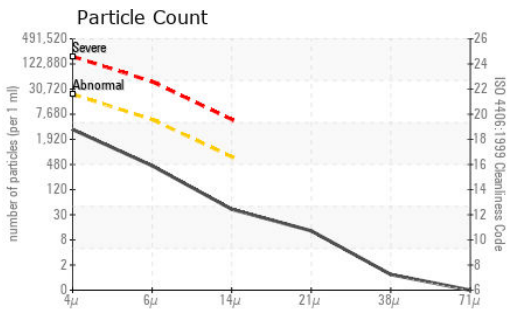
CONTAMINATION

There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|--------|--------------|-----------|----------|-----|-----|
| Silicon | ppm | ASTM D5185m | >25 | 5 | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | 0 | --- | --- |
| Water | | WC Method | >0.1 | NEG | --- | --- |
| Particles >4µm | | ASTM D7647 | >20000 | 2893 | --- | --- |
| Particles >6µm | | ASTM D7647 | >5000 | 394 | --- | --- |
| Particles >14µm | | ASTM D7647 | >640 | 36 | --- | --- |
| Particles >21µm | | ASTM D7647 | >160 | 11 | --- | --- |
| Particles >38µm | | ASTM D7647 | >40 | 1 | --- | --- |
| Particles >71µm | | ASTM D7647 | >10 | 0 | --- | --- |
| Oil Cleanliness | | ISO 4406 (c) | >21/19/16 | 19/16/12 | --- | --- |
| Silt | scalar | *Visual | NONE | NONE | --- | --- |
| Debris | scalar | *Visual | NONE | NONE | --- | --- |
| Sand/Dirt | scalar | *Visual | NONE | NONE | --- | --- |
| Appearance | scalar | *Visual | NORML | NORML | --- | --- |
| Odor | scalar | *Visual | NORML | NORML | --- | --- |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | --- | --- |

FLUID CONDITION

| | | | | | | |
|------------------|----------|-------------|--|------|-----|-----|
| Sodium | ppm | ASTM D5185m | | 3 | --- | --- |
| Boron | ppm | ASTM D5185m | | 7 | --- | --- |
| Barium | ppm | ASTM D5185m | | 0 | --- | --- |
| Molybdenum | ppm | ASTM D5185m | | 0 | --- | --- |
| Manganese | ppm | ASTM D5185m | | 0 | --- | --- |
| Magnesium | ppm | ASTM D5185m | | 5 | --- | --- |
| Calcium | ppm | ASTM D5185m | | 1460 | --- | --- |
| Phosphorus | ppm | ASTM D5185m | | 608 | --- | --- |
| Zinc | ppm | ASTM D5185m | | 638 | --- | --- |
| Sulfur | ppm | ASTM D5185m | | 7042 | --- | --- |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | 1.05 | --- | --- |
| Visc @ 40°C | cSt | ASTM D445 | | 44.1 | --- | --- |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : LHMC154573

Lab Number : 06195874

Unique Number : 11057997

Test Package : MOB 2

Received : 30 May 2024

Tested : 02 Jun 2024

Diagnosed : 02 Jun 2024 - Don Baldrige

GROFF TRACTOR

1545 HOOK RD

FOLCROFT, PA

US 19032

Contact: MIKE NOBLE

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T: (610)586-2710

F:

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)